

PART I – THE SCHEDULE

SECTION C

STATEMENT OF WORK

C.1 PROJECT OVERVIEW, BACKGROUND, AND GENERAL REQUIREMENTS

C.1.1 BACKGROUND

Historical missions of the Y-12 National Security Complex (Y-12) resulted in the release of mercury to the environment. The West End Mercury Area (WEMA) consists of former mercury use buildings located in the west end of the Y-12 Main Plant Area, including mercury contaminated soils and storm sewers in the immediate vicinity. Residual mercury in the deteriorating storm drain infrastructure, infiltrating groundwater, and sediment-bound mercury are remobilized and transported through the storm drain network to a discharge point called Outfall 200 (OF200) into the East Fork of Poplar Creek (EFPC). The primary mercury pathway of concern is surface water because EFPC flows from the Y-12 complex into the city of Oak Ridge.

In 2014, the DOE Oak Ridge Office of Environmental Management (OREM) issued a comprehensive plan addressing mercury remediation at Y-12 titled, “Strategic Plan for Mercury Remediation at the Y-12 National Security Complex, Oak Ridge, Tennessee” (DOE/OR/01-2605&D2). This Strategic Plan outlined a multi-pronged, adaptive approach to mitigate mercury contamination sources, remediate soils for controlled industrial use, and reduce water borne contamination leaving the site.

As a critical early component of the overall Y-12 mercury remediation strategy, design and construction of the Outfall 200 Mercury Treatment Facility (OF200 MTF) is a priority for OREM. The OF200 MTF is a key component of the strategy to reduce routine mercury migration into the headwaters of EFPC. The facility will also reduce mercury migration during upcoming demolition and remediation activities of mercury-laden buildings at Y-12. When operations commence, the goal for the facility is to reduce mercury contamination levels in the water and wildlife of Poplar Creek.

Some site preparation activities will be performed early by other contractors. DOE anticipates all early site preparation work will be completed prior to award of the OF200 MTF contract, with the exception of the secant pile walls. These activities include clearing and vegetation removal along areas of the EFPC, demolition/removal of select existing structures and other abandoned components, installation of underground transfer pipe casing and piping at three road crossings, routing and stubbing utility services to the site, rerouting an existing steam condensate line, and installation of secant pile walls.

C.1.2 PURPOSE

The purpose of this contract is for the construction of the OF200 MTF. This contract scope covers facility construction, including but not limited to mobilization of the construction work force and equipment to the site, site preparation, civil and structural erection, procurement and installation of process and support equipment, piping, electrical, instrumentation and controls, final site work, and demobilization. Performance of construction acceptance testing, including system acceptance testing (cold testing) to verify installation and operability of equipment, piping, and instrumentation is also included in the contract scope.

OREM's cleanup contractor for the Oak Ridge Reservation will provide technical support to DOE during construction, acceptance test procedure development that will be used to perform the system acceptance testing, and Title III engineering services (engineering during construction, including design changes, and as built drawings and specifications). These services are considered Government Furnished Services and Information (GFS&I). The scope of this contract also excludes performance of operational test procedure development and performance (hot testing), and operational readiness and startup of the facility by the operations contractor, which will take place after completion of this contract.

The OF200 MTF, a water treatment system executed under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), will be constructed near OF200 within the Y-12 main industrial area in Oak Ridge, TN. The various facilities that comprise the OF200 MTF will have a combined footprint of approximately 200,000 square feet. There are two primary areas: the Headworks area located near OF200, and the Treatment Plant located approximately one half mile east of the Headworks area. The two areas will be joined by an above ground transfer pipeline. A summary of each is provided in the following paragraphs.

C.1.2.1 HEADWORKS

The OF200 MTF diversion structure and Headworks are located adjacent to the outfall on the south side of EFPC. Grit will be separated prior to transfer of the diverted water via a pipeline to the treatment plant. For diverted storm water in excess of the treatment capacity, grit separation is followed by pumping to a 2 million gal storm water storage tank, which is also located at the Headworks. Storm water collected in the storage tank is fed into the Treatment Plant as EFPC flow and treatment capacity allows.

C.1.2.2 TREATMENT PLANT

The Treatment Plant is located near the east end of Y-12. A transfer pipeline will be located generally along the south side of EFPC to connect the Headworks to the Treatment Plant. The Treatment Plant consists of outdoor tanks, treatment equipment, and a treatment building that houses weather sensitive equipment.

The outdoor equipment includes an equalization tank, process reaction tanks, clarifier/thickeners, bulk chemical tanks, and sludge settling tanks. Equipment indoors in the treatment building includes multi-media filtration (MMF), filter clearwell and backwash basins, backwash pumps and associated equipment, filter presses, treatment chemical metering and polymer make-down systems, and operations support and control areas.

C.1.2.3 TRANSFER PIPELINE

A transfer pipeline approximately 3,100 ft. long will be constructed between the Headworks and treatment plant areas, generally paralleling the south side of EFPC and crossing EFPC to the north to enter the treatment plant. The pipeline will be constructed primarily of ultraviolet resistant high-density polyethylene (HDPE), with select sections constructed of cement-lined ductile iron pipe. The HDPE pipeline has a diameter of 20 in., and is generally located above ground and supported at grade. The pipeline is buried at road crossings and the entrances into the Headworks and treatment plant, and elevated on a pipe bridge at the EFPC crossing. While the terrain over which the pipeline will run is slightly downhill overall, the base flow wet well pumps provide the necessary head to transfer water to the treatment facility. An air-vacuum relief valve (AVRV) is located at the high point along the pipeline. The above grade piping is allowed to move with thermal expansion while being anchored to protect against damage and unwanted movement, with concrete pipe anchors and appropriate restraints provided at key locations. Pedestrian crossings are provided at intervals along the route to facilitate access to existing Y-12 infrastructure and the south bank of EFPC from the 3rd Street area.

Conduits parallel the transfer pipeline. The conduits contain the fiber optic cable for instrumentation and control (I&C) communication between the Headworks and treatment plant and electrical power from the Headworks to the AVRVR heat trace.

C.2 DESCRIPTION OF PERFORMANCE REQUIREMENTS

This contract requires the Contractor to manage, integrate, and execute the work described in this SOW. The Contractor shall provide all personnel, equipment, supplies, facilities, transportation, tools, materials, supervision, and other items and non-personal services to complete the contract work scope, except for the services and information identified as GFS&I.

The Contractor shall be responsible for the integration and management of this project. The Contractor will be the single point of accountability for the OF200 MTF construction activities, safety and quality assurance programs, regulatory and DOE-OREM interface, and project management in performance of this Contract.

SOW performance expectations include the following:

- The Contractor shall provide all services and deliverables identified in this SOW in a timely, complete, effective and efficient manner.
- The Contractor shall demonstrate commitment to safety and quality in providing all services and in preparation of all deliverables required by the contract.
- The Contractor shall ensure that personnel assigned to the contract have the skills required to perform the SOW requirements.

C.2.1 GENERAL WORK REQUIREMENTS

The Contractor shall ensure that all activities are conducted in compliance with applicable laws, regulations, DOE directives, and CERCLA decision documents in effect for Y-12.

The Contractor shall ensure the effective performance of all activities necessary to execute the SOW, which includes the following: technical management, project controls, scheduling and action tracking, estimating, procurement support, administrative support, subcontract oversight, regulatory and environmental compliance, quality assurance, risk management, safety and health, radiation protection, worker training, fire protection, and records management.

The Contractor shall provide a full-time Site Safety Officer at the work site for the duration of the execution of the field work. DOE will maintain safety and health oversight of the work and monitor work activities for compliance to the work plans, Job Hazard Analyses (JHAs), industry safety practices, OSHA standards, and/or other applicable requirements.

The Contractor is responsible for control and management of the site during construction, including clearly defined processes for safe, reliable, and efficient conduct of all activities occurring on the site. The Contractor will be responsible for integrating and coordinating site activities with the Y-12 Operating Contractor. The Contractor shall also provide a full-time General Superintendent at the work site for the duration of the execution of the field work.

The Contractor shall ensure that its personnel meet and maintain the appropriate training, qualification and certification requirements required for the tasks being performed. The Contractor shall hire only competent personnel to be used in the performance of this contract. Training includes, but is not limited to, mandatory company, access-specific, functional-specific, project-specific, facility-specific, job-specific, and professional qualification training.

All contractor personnel will be required to attend site access training and obtain an access badge prior to coming on site. The Contractor shall have all personnel assigned to this project take the Y-12 General Employee Training.

DOE has developed a Quality Assurance Surveillance Plan (QASP) that provides a more detailed list of contractor quality assurance performance requirements. The QASP

outlines the kinds of surveillance that DOE is using to evaluate the Contractors' performance. See Section J, Attachment J-11 for the QASP.

The OF200 MTF construction area is free from radiological contamination that reaches the threshold requiring radiological controls. This has been verified by reports and site characterization data. However, as a precaution, it is necessary to validate this condition during excavation. The Contractor shall provide radiation protection support in accordance with the Radiation Protection Plan, defined in Section C.2.3, to validate that the site is free of radiological contamination periodically, during any excavation, and verification that radiological contamination is not present on equipment coming into the site or exiting the site.

The Contractor shall monitor for mercury vapor during excavation of in situ soil and address appropriate controls for worker protection in its Worker Safety and Health Program.

C.2.2 PROJECT COORDINATION

Section G, *Contract Administration Data*, defines the role and responsibilities of the Contracting Officer (CO) and the Contracting Officer's Representative (COR). The COR will be supported by the Contract Technical Representatives (CTR), who monitor and report on Contractor progress. The CTR supports and provides recommendations to the COR, but is not authorized to provide direction to the Contractor.

All on-site work activities shall be coordinated with DOE CTR at least 1 day in advance, unless otherwise noted. The Contractor shall invite DOE's CTR to "Plan of the Day" meetings and provide a daily work plan that briefly identifies activities planned for the following day. The Contractor shall communicate all changes in planned activities to the COR and DOE's CTR prior to implementation. The Contractor shall communicate issues affecting the contract with a Request for Clarification of Information (RCI). See Section J, Attachment J-10.

The work will be conducted at the Y-12 National Security Site. The normal Y-12 site work schedule is a 4 day, Monday through Thursday, 6:30 AM to 5:00 PM, 40 hour work week; however the Contractor may propose an alternate work schedule. Any deviation requests to the normal Y-12 site work schedule require a minimum 48 hours advanced notice to the COR, with a copy to the DOE's CTR. The Contractor shall provide a minimum of 72 hours advance notice to DOE's COR of its intent to access the site on observed holidays. DOE retains the right to reject requests of alternate work schedules and/or work on observed holidays.

The Contractor shall participate in weekly Construction Progress Meetings with DOE (with support by others as determined necessary by DOE) for the full duration of the contract to review the project schedule, discuss actions pending input from DOE, and resolve questions or concerns. At a minimum, the Contractor's Project Manager and/or Construction Manager (or other manager at the discretion of the COR) with authority to

resolve field problems and make changes in schedule shall participate in progress meetings, with additional Contractor personnel participation on an as-needed basis. The Contractor shall provide a rolling three week schedule showing one week actual progress and a two week look-ahead forecast at each weekly progress meeting. DOE's CTR will be responsible for issuing the Meeting Agenda, Meeting Notes and maintaining an Action Items list.

The Contractor shall participate in bi-weekly Integrated Project Team Meetings, with the Contractor's Project Manager and/or Construction Manager (or other manager at the discretion of the COR) in attendance at a minimum. Bi-weekly IPT meetings will be chaired by DOE, who will be responsible for issuing the Meeting Agenda and Meeting Notes.

C.2.3 SUBMITTAL REQUIREMENTS

The Contractor shall provide submittal information in accordance with the contract requirements and the Master Submittal Log (MSL). See Section J, Attachment J-3. All submittals by the Contractor are subject to review and comment incorporation. In no event will such review and comment relieve the Contractor of the responsibility of compliance with all requirements of the contract.

Prior to mobilization, the Contractor shall develop and submit for approval the appropriate project planning documents listed in Section J, Attachment J-3 to demonstrate readiness to perform. These documents include, but are not limited to the following:

Baseline Schedule: The Contractor shall submit a Contract Baseline Schedule for DOE review and acceptance. The schedule shall be provided in Primavera P6, version 16.1. The Contractor shall submit a brief narrative description of their plan for performing each part of the work scope to accompany the baseline schedule. The baseline schedule shall consist of a precedence network diagram using the critical path method to show each individual essential activity in sequence to meet the contract milestones and include predecessor/successor relationship logic, start/finish dates, and clearly identified subtask durations in calendar days. The schedule shall be of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. The baseline schedule shall be able to calculate a critical path for the entire project. The schedule shall also show durations and dependencies, including off-jobsite activities such as design, fabrication of equipment, and procurement and delivery of material, as well as total float and free float times.

Critical Path Schedule: The Contractor shall maintain a detailed, resource loaded critical path schedule for the entire construction project and submit to the CO for information monthly.

Project Management Plan: The Contractor shall develop and submit a Project Management Plan that identifies the organizational structure, and clearly defines

personnel authorities, responsibilities, accountabilities, and interfaces for management of the facilities. The Project Management Plan shall establish the Contractor policies, programs, and/or procedures to be used, including addressing as a minimum the following elements:

- Establishing clear lines of authority and responsibility for planning, authorizing, and controlling facility activities;
- Establishing a comprehensive safety program, including methods for the analysis of hazards and implementation of hazard controls in the work planning and execution process;
- Accident and incident investigation and reporting, including occurrence reporting;
- Lockout/tagout;
- Excavation/Penetration permitting

Work Control Plan: The Contractor shall develop and submit a Work Control Plan per the Department of Energy Acquisition Regulation (DEAR) clause at 48 CFR 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*, for DOE approval. The Work Control Plan shall address how all on-site work activities are planned, authorized, and performed. The Contractor will assume the lead role in the development of the work control documents. The Contractor's Work Control Plan shall address, as applicable, work control document development; work planning (e.g., defining the scope of work, worker participation, walk downs, identifying hazards, methods to implement hazard controls, etc.); use of internal procedures, work instructions, checklists, or other workers aids; worker training/briefing prior to performing field work activities; and closeout of work activities.

Training Program Plan: The Contractor shall develop and submit a Training Program Plan to ensure that the training and qualification requirements are met and shall verify that all employees have completed the necessary training and qualification requirements to perform their assigned tasks. The Contractor shall list the field work and support positions to which their employees are assigned. The Contractor shall identify the roles and responsibilities for each position (these may be defined by procedures that are utilized in the performance of duties). The Contractor shall define and document any education and experience requirements, previous qualifications (i.e., union journeyman training), position skills training, safety training, facility specific training, and any other training required for individuals to be qualified for those positions. The Contractor shall develop and maintain a matrix that lists the individuals in each position and the associated training requirements. These records shall be readily available for inspection upon DOE's request. The Contractor shall bear all costs associated with required training. This includes time required by Contractor personnel to obtain the training as well as any associated tuition and materials costs.

Integrated Safety Management System (ISMS) Program Description: The Contractor shall manage and perform work in accordance with a documented Safety Management System per Section I DEAR clause 970.5223-1, *Integration of Environment, Safety, and Health into Work Planning and Execution*, which shall be submitted for DOE approval.

Radiation Protection Plan: The Contractor shall develop and submit a Radiological Protection Plan in compliance with 10 CFR 835, *Occupational Radiation Protection*, and obtain DOE approval.

Waste Management Plan: The Contractor shall develop, submit, and maintain a Waste Management Plan that meets all applicable laws, regulations (i.e RCRA, CERCLA, TSCA) and applicable waste acceptance criteria. The Waste Management Plan shall include transportation and storage and must be approved by DOE. The Waste Management Plan should also reflect an integrated overarching approach to waste management that minimizes generation and maximizes recycling and reuse.

C.2.4 ENVIRONMENTAL COMPLIANCE AND PROTECTION

2.4.1 GENERAL

This project is being performed under CERCLA and as such there are Applicable and Relevant or Appropriate Requirements (ARARs) that have been addressed during design and will continue to be addressed during construction. The Contractor shall perform work activities in accordance with environmental compliance and protection requirements and Best Management Practices (BMPs). Work control documents and hazard assessments shall address hazards significant to the environment and provide applicable controls. National Environmental Policy Act (NEPA) values and National Historic Preservation Act (NHPA) are also applicable and the Contractor shall comply with the requirements in *10 CFR Part 1021, DOE NEPA Implementing Procedures, NEPA (42 USC 4321 et seq.), NHPA (PL89-665)* and other relevant preservation and archeological protection legislation as applicable to the work. The excavation/penetration permits for the project will include evaluation of ecological, cultural, and historic resources in advance of work activities that involve the excavation of soil and installation of structures. The Contractor shall notify DOE if any natural, cultural or historic resources are identified during their work activities.

Water management during excavation is an important environmental aspect of the Contractor's work which has been addressed in Specification 31.23.19.01, Dewatering. The Contractor shall develop and submit a Water Control Plan in accordance with the requirements of the specifications.

2.4.2 CLEAN WATER ACT & STORM WATER POLLUTION PREVENTION

The Contractor shall comply with the requirements of the Clean Water Act (CWA); *TR 0400-40-01, -03, 04, and -05; 40 CFR Parts 122, 129, 403; CWA Sections 401 and 404*; and comply with applicable permits including CWA 26A Permit (TVA), ARAP (Form CN-0191), Y-12 NPDES permit, and TNR100000, *General NPDES Permit for Discharge of Storm Water associated with Construction Activities*, where applicable.

A Storm Water Pollution Prevention Plan (SWPPP) will be developed for the work and provided as an attachment. It will address authorized discharges; spill prevention and reporting; solid waste and litter control; dust suppression; soil stabilization; storm water runoff controls; inspection requirements; BMPs; and Aquatic Resources Alteration Permit (ARAP) information. The Contractor shall follow the SWPPP requirements as outlined in the plan including performance of required inspections of erosion control devices and maintenance of records.

2.4.3 CLEAN AIR ACT

The Contractor shall comply with the *Clean Air Act CAA (42 USC 7401 et seq.)*, *Tennessee Air Quality Act*, and *40 CFR Part 61 of NESHAPs*, *40 CFR Part 82, Protection of Stratospheric Ozone* and *40 CFR Part 80, Regulation of Fuels and Fuel Additives*. The Contractor shall comply with *40 CFR Part 98, Mandatory Greenhouse Gas Reporting* and *TR 1200-3 Tennessee Air Quality Act* regarding NESHAPs, ODSs, construction and facility operating permit compliance, regulation of fuels and additives, greenhouse gas (GHG) emission controls and fugitive dust emissions controls, as applicable. The Contractor shall evaluate new potential GHG sources and submit notification to DOE/Y-12 NSC prior to beginning work. The Contractor shall comply with fugitive dust emission control during field activities, as necessary to minimize emissions.

The Contractor shall properly use, store and manage hazardous materials (e.g., chemicals, fuels, propane, insecticide, herbicide, etc.) in compliance with requirements in *7 USC 136 et seq.*, *Tennessee Code Annotated (TCA) 43-8-101 et seq.*, *40 CFR Part 152.175*, *40 CFR Part 171*. The Contractor shall use chemicals in accordance with manufacturers' labeling and instructions and apply best management practices when managing such hazardous materials. The Contractor shall prepare and submit monthly inventories of hazardous chemicals.

2.4.4 SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC)

The Contractor shall implement Spill Prevention Control and Countermeasures (SPCC) in accordance with 40 CFR Parts 110 and 112 and the Y-12 Plant's *SPCC for the US DOE Y-12 NSC (Y/SUB/02-001091)*. The Contractor shall provide SPCC awareness training and annual discharge prevention briefing to personnel.

The Contractor shall notify and report release incidents and spills to DOE and the Y-12 Plant Shift Superintendents Office, who will subsequently report to the Tennessee Department of Environment and Conservation (TDEC) and the Environmental Protection Agency (EPA). The Contractor shall develop and maintain paperwork for release incidents and spills and provide as an Information Submittal. Incident reporting and recordkeeping shall be in accordance with 40 CFR Parts 302 and 355 and the provisions of the Tennessee Oil Spill Cleanup and Environmental Preservation Act.

2.4.5 INPUT FOR DOE & Y-12 ANNUAL REPORTS

The Contractor shall provide construction information for DOE and Y-12 Annual Reports in accordance with Sections 311 and 312 of the *Emergency Planning and Community Right-to-Know Act (EPCRA)* and *DOE Order 231.1B*. Construction information will be used in EPCRA Report, DOE Annual Site Environmental Report (ASER), and Oak Ridge Reservation (ORR) Monitoring Plan.

2.4.6 POLLUTION PREVENTION & REPORTING

The Contractor shall purchase products for construction work in accordance with the *Pollution Prevention Act of 1990*, 7 CFR 2902, 40 CFR Part 247, TCA 68-212-301 *Tennessee Hazardous Waste Reduction Act*, and TCA 68-46-306A *Tennessee Pollution Prevention Act*. The Contractor shall submit information for Annual Pollution Prevention Reporting including the Annual Hazardous Waste Reduction Progress Report and Environmentally Preferable Purchasing data and information that addresses the selection of recycled and biobased materials utilized in the construction process.

2.4.7 COORDINATION WITH REGULATORS

DOE will perform the direct coordination with regulators through the Oak Ridge Federal Facility Agreement (FFA) with support from the Contractor, including requests for information and for site visits. The Contractor shall allow access for FFA representatives to the project site after coordination by DOE.

C.2.5 INTERFACES

The Contractor shall interface with the Y-12 Operating Contractor and OREM's site contractor responsible for providing technical support to DOE during construction of the OF200 MTF. Project activities and site coordination roles, responsibilities, and interfaces shall be documented in applicable governing work control documents.

The Contractor shall limit activities to the immediate work site and designated staging areas. Travel shall be limited to the main roads. The work site is in close proximity to active Y-12 nuclear facilities. Care shall be taken to ensure that project work remains within the boundaries delineated on the project drawings. The Contractor shall coordinate all potential interface activities with the COR and DOE's CTR. The Contractor shall coordinate all site work activities with Y-12 site activities to mitigate impacts to site operations.

The Contractor shall coordinate with the Y-12 Operating Contractor for utilities, site and facilities access, and on-site emergency response including, but not limited to, the following:

- Requesting and coordinating any required outages modifications, or tie-ins for utilities;
- Requesting and coordinating Lockout/Tagout (LO/TO) for Y-12 Operating Contractor controlled utilities;
- Providing input to the Y-12 Operating Contractor Plan of the Week;
- Requesting Y-12 to designate facilities/locations for assembly/shelter/take cover locations; and
- Coordinating arrangements with the Y-12 Operating Contractor for any other services the Contractor may need (e.g., dumpster and emptying for sanitary waste from trailers, etc.).

The Contractor shall establish Interface Agreements with the aforementioned entities as required.

As a CERCLA project, the OF200 MTF construction is governed by the *Federal Facilities Agreement for the Oak Ridge Reservation*. The Contractor shall provide support to OREM as requested for regulatory interfaces regarding project activities, including progress information and participating in monthly Integrated Project Meetings with regulators. DOE expects a high-level of interest from cognizant federal and state regulators.

C.2.6 GENERAL ASSUMPTIONS

1. Early site preparation activities, with the exception of the secant pile walls (which are located at the Headworks area) will be complete prior to issuance of the initial Notice to Proceed for this scope of work. The secant pile wall contractor will demobilize from the site by the end of November 2018.
2. No new or revised federal or state environmental permits will be required to perform the construction. Additionally, no City of Oak Ridge building permits are required for this project scope.
3. For OF200 MTF construction and operational responsibility for the site footprint will be transferred from NNSA to OREM. The Contractor is responsible for management of the facilities from mobilization through construction contract closeout.
4. The construction areas are designated as Underground Radioactive Materials Areas (true of the large majority of the Y-12 site) by the Y-12 Operating Contractor. Based on available data, surface soils and structure characterization indicate no hazardous or radiological constituents with levels above the threshold for respiratory protection in the work site.
5. Based on available data, no remediation of water or soils is required as part of the construction work scope.
6. Debris and clearing/grubbing materials are assumed to meet the waste acceptance criteria of the ORR Landfills.
7. No dumping fees are assessed to the Contractor at ORR Landfills.
8. The round trip from the work site to the ORR Landfills is approximately 10 miles.

9. Dewatering volumes are determined from the average annual precipitation in Oak Ridge, TN (approximately 51 – 54 inches per year).
10. Characterization data indicates groundwater in the area can be discharged in the area, so extracted water from de-watering efforts is assumed to be dischargeable to the surrounding soils. Sediment controls are required.
11. The total depth for all storm water storage tank bearing piers (25 in total) is assumed to be 750 lineal ft.
12. The total depth for all equalization tank bearing piers (25 in total) is assumed to be 625 lineal ft.
13. Acceptance Test Procedures (ATP) will be developed by others.
14. Test Directors for ATPs will be provided by others.
15. The Contractor is to provide all craft labor, material and equipment to perform ATPs. Assume sixteen (16) individual system ATPs and one (1) integrated system ATP. Assume an average of five (5) workers for one (1) week duration for performing each of the ATPs.
16. No blasting will be allowed.
17. Final ATP Test Reports will be issued by others.
18. The Contractor will provide all materials necessary for the utility tie-ins. The Contractor will perform tie-ins to storm drains and sewers. The remaining tie-ins will be performed by the Y-12 Operating Contractor.

C.2.7 SECURITY

The Contractor shall notify and obtain approval from the Y-12 Operating Contractor prior to the use of any wireless devices. A minimum of sixty days are required to obtain approval for use of these devices. This includes 2-way radios, civil survey equipment, and any other equipment with transmitting capabilities. This does not include cellular phones. No photography or video recording of any kind is allowed at the Y-12 site by the Contractor. If photographs or videos are needed, the Contractor shall contact the Y-12 Operating Contractor.

C.2.7.1 BADGING

Personnel shall be badged to enter the Y-12 Site. The Contractor shall request badges from Y-12 Operating Contractor at least 14 calendar days in advance of scheduled site entrance of employees assigned or scheduled to work. Proof of current site access training is a prerequisite for obtaining a badge. Approximately 4 hours per employee is required to complete the Y-12 Operating Contractor provided site access training. This training will be conducted at the Y-12 site and be no cost to the Contractor.

The Contractor shall coordinate with the COR and Y-12 Operating Contractor to arrange for visitor access. The Contractor shall submit visitor badge requests to the Y-12 Operating Contractor for temporary access at least 72 hours in advance of the scheduled visit. Incomplete requests can delay processing of the request

and the Contractor shall be liable for any impact on contract performance occasioned by such delay.

The Contractor shall return badges upon completion of each employee's last day of on-site work. Final payment will not be processed until all badges are returned.

C.2.7.2 VEHICLE SITE ACCESS

Access portals are located on Bear Creek Road. Personal vehicles may only be parked in lots and spaces designated for employee parking.

Deliveries shall be through the Y-12 construction entrance identified on drawing number C941001-F-0009, civil overall site location, key map and access plan, located in Section J, Attachment J-2. Parking and work site access for Contractor vehicles used to conduct work shall be coordinated with the DOE CTR. The Contractor's work site is identified on the drawings.

Parking along roads is prohibited.

C.3 SCOPE FOR CONSTRUCTION OF OF200 MTF

All field work shall be performed in accordance with the specifications (Section J, Attachment J-1) and drawings (Section J, Attachment J-2) that have been stamped Issued for Construction (IFC), the Contractor's approved work control documents, and project SWPPP. The Contractor shall coordinate with DOE for required Special Inspections to meet applicable International Building Code (IBC) requirements, in accordance with the drawings and specifications. Engineering services during construction will be provided by others. The Contractor shall perform all other required testing as defined in the specifications and drawings to demonstrate compliance with the design requirements.

C.3.1 PROJECT MANAGEMENT (CLIN 0001)

To complete the work associated with Project Management, the Contractor shall:

C.3.1.1 MOBILIZATION AND PRE-MOBILIZATION SUBMITTALS PROJECT MANAGEMENT

Submit required programmatic plans and Pre-Mobilization Submittals as specified on the MSL in Section J, Attachment J-3. Obtain status from DOE as required prior to mobilizing to site or performing the first related work activity.

Submit a sketch of the proposed "Layout for Temporary Facilities" (e.g., trailers, parking, laydown/staging, portable toilets, etc.), including proposed utility connections and required service. DOE will review and approve the proposed layout, prior to authorizing mobilization to the site. The Contractor is responsible

for obtaining temporary construction utility tie-ins from the Y-12 Operating Contractor.

Submit a Traffic Control Plan for approval. As a minimum, the plan will address potential traffic interruptions during the project, including required road closures, potential impediments to emergency vehicle traffic, and the Contractor's plans to provide and maintain sufficient traffic controls (e.g., signs, barriers, flaggers, etc.).

Develop and obtain approval for initial work control documents prior to DOE authorizing mobilization. Initial work control documents shall address all work activities required to complete mobilization and initiate site work activities to maintain project schedule, including installations of temporary facilities, installation of silt and security fencing, and construction lighting. Work control documents (individually or in groups) for remaining scope shall be developed and approved prior to performance of the related field work activities. The Contractor's construction schedule shall include walk downs, work package development and approval activities as predecessors to their corresponding construction activities.

Submit a list of all vehicles, trailers, and construction equipment (e.g., fork trucks, telehandlers, etc.) used for construction. The Contractor shall address requirements for performing and documenting equipment inspections, including inbound inspection, daily pre-use inspections, and outbound inspections. The Contractor shall notify the COR and copy DOE's CTR a minimum of 48 hours in advance of the on-site arrival of equipment.

C.3.1.2 CONSTRUCTION, TESTING, AND DEMOBILIZATION PROJECT MANAGEMENT

Upon authorization by DOE to mobilize, the Contractor shall deliver all equipment, vehicles, tools, materials and personnel to the work site as required for the initial activities. Mobilization includes inbound equipment inspections and mobilizing personnel and materials to support construction. Equipment and materials will be mobilized and demobilized throughout construction as required to support work activities.

Furnish all equipment, labor, and materials to complete installation of temporary facilities in accordance with applicable approved pre-mobilization submittals, including the "Layout for Temporary Facilities" addressed in C.3.1.1.

Establish institutional control of the OF200 MTF construction footprint. The Contractor shall layout the facility boundaries including fencing to partition off the areas in such a manner so as to provide adequate access and coordination of potential entries by DOE and other contractors as required.

Some silt fencing at the site will be installed by others during early site preparation. Construction activities will take place at and adjacent to the EFPC stream channel and will include excavation of flood plain soil or stream sediments. The Contractor shall install any additional sediment control barriers (e.g., silt fencing, wattles, etc.) and bring erosion control measures up to the level depicted in the civil drawings; Division 31, Earthwork specification; and the SWPPP.

Maintain erosion control throughout the construction phase until final grades are established and disturbed areas are revegetated, or receive their asphalt or concrete surface.

Install temporary security fencing around the boundaries of the construction site to control access. Maintain temporary security fencing throughout the construction phase. Install proper site postings and signage in accordance with applicable requirements and approved submittals.

Perform all project management and construction management functions during construction, testing, and demobilization of the project.

C.3.2 HEADWORKS PROCUREMENT (CLIN 0002)

To complete the work associated with Headworks Procurement, the Contractor shall:

Procure all equipment and material to support construction of the Headworks facility, except material related to the Headworks storm water storage tank and associated appurtenances listed in paragraph C.3.8 (CLIN 0008). The Contractor shall procure storm flow grit facilities process equipment, engineered buildings, storm flow grit facilities electrical equipment, and electrical equipment for intake/base flow grit facilities, per the drawings and specifications.

Conduct factory acceptance testing prior to system or component shipment as required by specifications.

Ensure that equipment is properly packaged, shipped, and stored while awaiting installation. Document receipt inspection of all items and handle/stage/store procured items, as required by manufacturer and in accordance with the Contractor's approved plans.

C.3.3 TREATMENT PLANT PROCUREMENT (CLIN 0003)

To complete the work associated with Treatment Plant Procurement, the Contractor shall:

Procure all equipment and material to support construction of the treatment plant facility except material related to the treatment plant equalization tank and appurtenances listed in paragraph C.3.8 (CLIN 0008). The Contractor shall

procure Treatment Plant Building Components, Solids Precipitation and Dewatering Equipment, and Process Equipment per the drawings and specifications. Document receipt inspection of all items and handle/stage/store procured items as required by manufacturer and in accordance with the Contractor's approved plans.

Conduct factory acceptance testing prior to system or component shipment as required by specifications.

Ensure that equipment is properly packaged, shipped, unloaded, staged, and/or stored in accordance with manufacturer requirements and in accordance with the Contractor's approved plans. Document receipt inspection of all items.

Procure and deliver hardware and software to DOE's COR in accordance with Specification section 40 90 00, Instrumentation and Control for Process Systems, for DOE's Supervisory Control and Data Acquisition (SCADA) system. The major function of SCADA is acquiring and managing data from remote devices such as valves, pumps, transmitters etc. and providing overall control remotely from a single location.

C.3.4 HEADWORKS FOUNDATION EXCAVATION (CLIN 0004)

To complete the work required to perform Headworks Excavation, the Contractor shall:

C.3.4.1 BASE FLOW FACILITY EXCAVATION, DISPOSAL, AND SHORING

Submit an Excavation Support Plan and install temporary shoring for deep excavation required for below grade structures at the Headworks site. Temporary shoring shall be designed, installed, maintained, and removed in accordance with Specification section 31 41 00, Shoring. Perform excavation of soil and rock for below grade concrete structures at the Headworks site (e.g. base flow grit chamber, base flow pump station, grit pump building) as shown on drawings and specifications. The Contractor shall transport excavated material offsite for disposal at the ORR Landfills in accordance with the approved Waste Management Plan. The Contractor shall maintain excavation in a dewatered condition in accordance with the approved Water Control Plan.

C.3.4.2 BASE FLOW FACILITY BACKFILL

Place and compact granular subbase material for base flow grit chamber, base flow pump station, storm flow grit chamber, storm flow pump station, and grit pump building in preparation for micropile installation and subsequent concrete work. The Contractor shall place and compact granular subbase material in accordance with civil and structural drawings and specifications.

C.3.4.3 STORM FLOW FACILITY EXCAVATION, DISPOSAL, AND SHORING

Submit an Excavation Support Plan and install temporary shoring for deep excavation required for below grade structures at the Headworks site. Temporary shoring shall be designed, installed, maintained, and removed in accordance with Specification section 31 41 00, Shoring. Perform excavation of soil and rock for below grade concrete structures at the Headworks site (e.g. storm flow grit chamber, storm flow pump station) as shown on drawings and specifications. The Contractor shall transport excavated material offsite for disposal at the ORR Landfills in accordance with the approved Waste Management Plan. The Contractor shall maintain excavation in a dewatered condition in accordance with the approved Water Control Plan.

C.3.5 HEADWORKS FOUNDATION INSTALLATION (CLIN 0005)

To complete the work required to construct Headworks Structures, the Contractor shall:

C.3.5.1 BASE FLOW FACILITY MICROPILE AND FOUNDATION INSTALLATION

Install micropiles for the base flow grit chamber, base flow pump station, and grit pump building after required excavation depths are reached and subbase is prepared. The Contractor shall design and install micropiles in accordance with structural drawings and performance specification requirements.

Construct forms, install rebar, and place concrete, for structural slabs for the base flow grit chamber, base flow pump station, and grit pump building in accordance with structural drawings and specifications. After concrete has cured sufficiently, the Contractor shall remove formwork.

C.3.5.2 STORM FLOW FACILITY MICROPILE AND FOUNDATION INSTALLATION

Install micropiles for the storm flow grit chamber, and storm flow pump station, after required excavation depths are reached and subbase is prepared. The Contractor shall design and install micropiles in accordance with structural drawings and performance specification requirements.

Construct forms, install rebar, and place concrete, for structural slabs for the storm flow grit chamber, and storm flow pump station in accordance with structural drawings and specifications. After concrete has cured sufficiently, the Contractor shall remove formwork.

C.3.5.3 STRUCTURAL CONCRETE FOR BASE FLOW CHANNEL, DIVERSION WEIR STRUCTURE, AND GRIT PROCESSING

After partially backfilling around Headworks below grade structures, the Contractor shall construct forms, install rebar, and place concrete, for structural concrete for base flow channel, intake structure, and in-stream diversion weir. The Contractor shall perform work in accordance with structural drawings and specifications. After concrete has cured sufficiently, the Contractor shall remove formwork. After weir installation, the Contractor shall place stream channel rip rap in accordance with drawings and specifications.

C.3.5.4 STRUCTURAL CONCRETE FOR STORM FLOW CHANNEL

After partially backfilling around Headworks below grade structures, the Contractor shall construct forms, install rebar, and place concrete, for structural concrete for storm flow channel. The Contractor shall perform work in accordance with structural drawings and specifications. After concrete has cured sufficiently, the Contractor shall remove formwork.

C.3.6 TREATMENT PLANT SITE PREPARATION & FOUNDATION EXCAVATION (CLIN 0006)

To complete the work required to perform Treatment Plant Excavation, the Contractor shall:

C.3.6.1 TREATMENT PLANT SITE DEMOLITION

Perform demolition of existing features and structures at the Treatment Plant site as shown on drawing number C941002-F-0001, Civil Treatment Facility Site Demolition Plan, including removal of concrete slabs, walls, stairs, docks and appurtenances, removal of asphalt, etc., as shown on drawings.

Maintain excavation in a dewatered condition in accordance with the approved Water Control Plan.

Clear and maintain vegetation from new plant effluent outfall area along EFPC as required.

C.3.6.2 TREATMENT PLANT DEBRIS DISPOSAL

Transport demolition debris, excavated and waste materials for disposal at the ORR Landfills in accordance with the approved Waste Management Plan.

C.3.6.3 TREATMENT PLANT REMEDIATION, BACKFILL, AND ROUGH SITE GRADING

Place and compact granular subbase material for the treatment plant in preparation for subsequent concrete work, in accordance with civil and structural drawings and specifications.

Place and compact backfill materials to rough grade level in accordance with civil and structural drawings and specifications after concrete foundations have reached specified required curing times.

C.3.7 TREATMENT PLANT FOUNDATION INSTALLATION (CLIN 0007)

To complete the work required to install treatment plant foundation, the Contractor shall:

C.3.7.1 GRAVITY FILTER CONCRETE

Construct forms, install rebar, and place concrete for Gravity Filter slab in accordance with structural drawings and specifications. After concrete has cured sufficiently, remove formwork.

Construct forms, install rebar, and place concrete for Gravity Filter walls in accordance with structural drawings and specifications. After concrete has cured sufficiently, remove formwork.

C.3.7.2 TREATMENT PLANT BUILDING CONCRETE

Construct forms, install rebar, and place concrete for below grade footings, sumps, and pier foundations for tanks and treatment building in accordance with structural drawings and specifications. After concrete has cured sufficiently, remove formwork.

C.3.7.3 OUTDOOR PROCESS AREA CONCRETE

Install drilled piers for the equalization tank in accordance with structural drawings and specifications, including pilot holes, drilling, rebar installation, concrete placement, and finishing. See paragraph C.2.5.12 for nominal pier depth.

Construct forms, install rebar, and place concrete, for structural slab for the equalization tank and chemical reaction tanks in accordance with structural drawings and specifications. After concrete has cured sufficiently, remove formwork.

Construct forms, install rebar, and place concrete for at grade slabs adjacent to treatment building and around treatment building site including chemical

unloading pad, concrete apron for roll-offs, tanker truck unloading pad, and electrical and heating, ventilation, and air conditioning (HVAC) equipment pads, in accordance with structural drawings and specifications. After concrete has cured sufficiently, remove formwork.

Construct forms, install rebar, and place concrete for diked containment slab for sulfuric acid and ferric chloride tanks, in accordance with structural drawings and specifications. After concrete has cured sufficiently, remove formwork.

Construct forms, install rebar, and place concrete for Chemical Reaction Tank walls in accordance with structural drawings and specifications. After concrete has cured sufficiently, remove formwork.

Construct forms, install rebar, and place concrete for Chemical Reaction Tank concrete beams and elevated slabs, in accordance with structural drawings and specifications. After concrete has cured sufficiently, remove formwork.

C.3.8 LARGE TANKS PROCUREMENT (CLIN 0008)

The Contractor shall be responsible for procuring all the equipment and material necessary for construction/fabrication the Treatment Plant's equalization tank and the Headworks' storm water storage tank and appurtenances. Document receipt inspection of all items and handle/stage/store procured items as required by manufacturer.

C.3.8.1 TREATMENT PLANT EQUALIZATION TANK EQUIPMENT/MATERIAL PROCUREMENT

Procure the tank and all tank material, equipment, coatings, and appurtenance submittals per the drawings and specifications, including but not limited to tank design, shop drawings, certification, vendor data, cut sheets, maintenance manuals, inspections, factory acceptance test results, etc., prior to start of shop fabrication and/or prior delivery to site. Document receipt inspection of all items and handle/stage/store procured items as required by manufacturer.

C.3.8.2 HEADWORKS STORM WATER STORAGE TANK EQUIPMENT/MATERIAL PROCUREMENT

Procure the tank and all tank material, equipment, coatings, and appurtenance submittals per the drawings and specifications, including but not limited to tank design, shop drawings, certification, vendor data, cut sheets, maintenance manuals, inspections, factory acceptance test results, etc., prior to start of shop fabrication and/or prior delivery to site. Document receipt inspection of all items and handle/stage/store procured items as required by manufacturer.

C.3.9 SITE WORK (CLIN 0009)

To complete the work required for site work, the Contractor shall:

C.3.9.1 MAJOR SITE EXCAVATION HEADWORKS

Perform site excavation for all Headworks facility foundations down to rock. All excavated materials will be loaded and hauled to disposal at the ORR Landfill.

C.3.9.2 MAJOR SITE EXCAVATION TREATMENT PLANT

Perform site excavation for all treatment plant foundations down to rock. All excavated materials will be loaded and hauled to disposal at the ORR Landfill.

C.3.9.3 ESTABLISH HEADWORKS SERVICE

Primary feed to the Headworks facilities will be from a 13.8 kV, Y-12 source located on the North side of 3rd Street. The feeder will be underground and terminating the Headworks unit substation located in the Grit Handling Building. Electrical equipment includes MV substations, transformers, and switch gear.

C.3.9.4 ESTABLISH TREATMENT PLANT SERVICE

Primary feed to the treatment plant will be from a 13.8 kV, Y-12 source located on the southwest corner of the site. The feeder will be underground and terminating the treatment plant unit substation A. Electrical equipment includes MV substations, transformers, and switch gear.

C.3.9.5 PERFORM SEEDING AND VEGETATION - ALL AREAS

Disturbed areas that will not be surfaced with gravel or concrete will be seeded and mulched in accordance with drawings and specifications.

C.3.9.6 CLEANUP - ALL AREAS

Cleanup includes hauling and disposal of final construction debris.

C.3.10 HEADWORKS BUILDING INSTALLATION (CLIN 0010)

To complete the work required for Headworks buildings installation, the Contractor shall:

C.3.10.1 GRIT PUMP PRE-ENGINEERED BUILDING

Install pre-engineered Grit Pump building in accordance with drawings, specifications, and manufacturer's installation instructions.

Install metal shelter for Grit Handling Station on prepared footings in accordance with drawings, specifications, and manufacturer's installation instructions.

Install Chemical Feed System building on prepared slab-on-grade, in accordance with drawings, specifications, and manufacturer's installation instructions.

C.3.10.2 HEADWORKS MECHANICAL EQUIPMENT AND MATERIAL INSTALLATION

Install all mechanical equipment and materials as required by drawings and specifications, including, but not limited to HVAC, plumbing, process equipment, pumps, manufactured tanks, piping, and pipe/equipment insulation. Coordinate installation with other trades (e.g., concrete walls, civil backfill, etc.) to prevent rework.

C.3.10.3 HEADWORKS ELECTRICAL, INSTRUMENTATION, AND CONTROL EQUIPMENT AND MATERIAL INSTALLATION

Install all electrical, and instrumentation and control materials and equipment in accordance with the requirements of the drawings and specifications. Installation of control systems such as SCADA and the electrical room. Other items installed would be emergency notification systems, fire alarms, communications, and access control systems.

C.3.11 HEADWORKS STORM WATER STORAGE TANK FOUNDATION INSTALLATION (CLIN 0011)

To complete the work required for Headworks Storm Water Tank Foundation installation, the Contractor shall:

C.3.11.1 SUBBASE AND DRILLED PIERS FOR STORM WATER STORAGE TANK

Place and compact granular subbase material for storm water storage tank in preparation for drilled pier installation and subsequent concrete work, in accordance with drawings and specifications.

Excavate for storm water return pipe concrete encased inlet section as shown on drawings. Install pipe, construct forms, install rebar, and place concrete at the storm water storage tank in accordance with drawings and specifications. After concrete has cured sufficiently, remove formwork.

Install drilled piers for the storm water storage tank in accordance with drawings and specifications including pilot holes, drilling, rebar installation, concrete placement, acceptance testing, and finishing. See paragraph C.2.5.11 for nominal pier depth.

C.3.11.2 STRUCTURAL SLAB FOR STORM WATER STORAGE TANK

Construct forms, install rebar, and place concrete for structural slab for the storm water tank, in accordance with drawings and specifications. After concrete has cured sufficiently, remove formwork.

C.3.11.3 BACKFILL FOR STORM WATER TANK

Place and compact backfill materials to finish grade level in accordance with civil and structural drawings and specifications after concrete foundation has reached specified required curing times.

C.3.12 HEADWORKS STORM WATER STORAGE TANK (SWST) INSTALLATION (CLIN 0012)

To complete the work required to construct the Headworks Storm water Storage Tank, the Contractor shall

C.3.12.1 CONSTRUCT AND INSTALL STORM WATER STORAGE TANK

Field erect tank as required by drawings and specifications, including painting. The Contractor shall coordinate installation with other trades to prevent rework.

C.3.12.2 CONSTRUCT AND INSTALL STORM WATER STORAGE TANK PROCESS EQUIPMENT

Install storm water tank storage process equipment as required by drawings and specifications. The Contractor shall coordinate installation with other trades to prevent rework.

C.3.12.3 CONSTRUCT AND INSTALL STORM WATER STORAGE TANK ELECTRICAL AND INSTRUMENTATION EQUIPMENT

Install storm water storage tank electrical and instrumentation equipment as required by drawings and specifications. The Contractor shall coordinate installation with other trades to prevent rework.

C.3.13 TREATMENT PLANT BUILDING AND TANKS INSTALLATION (CLIN 0013)

To complete the work required to construct the Treatment Plant Building and install various tanks, the Contractor shall:

C.3.13.1 TREATMENT PLANT BUILDING, EQUIPMENT AND MATERIAL INSTALLATION

Install engineered treatment plant in accordance with drawings and specifications, including structural steel, exterior roofs and walls, interior ceilings and walls, insulation, and interior and exterior finishes.

Design and install the sprinkler and fire alarm system.

Install Sludge Settling Tanks and support structural steel/skids on prepared concrete foundations, in accordance with structural and process mechanical drawings, specifications, and manufacturer's installation instructions

Install Clarifiers and support structural steel/skids on prepared concrete foundation, in accordance with structural and process mechanical drawings, specifications, and manufacturer's installation instructions.

Install structural steel and grating for exterior platforms and stairs for access around exterior process equipment, in accordance with structural drawings and specifications.

Install metal shelter for Chemical Storage Tank area on prepared footings in accordance with architectural and structural drawings, specifications, and manufacturer's installation instructions.

Install exterior electrical in accordance with structural, electrical, and mechanical drawings, specifications, and manufacturer's installation instructions.

C.3.13.2 TREATMENT PLANT BUILDING HVAC AND PLUMBING EQUIPMENT AND MATERIAL INSTALLATION

Install building HVAC and plumbing equipment and material in accordance with structural, electrical, and mechanical drawings, specifications, and manufacturer's installation instructions.

C.3.13.3 TREATMENT PLANT CHEMICAL REACTION TANKS EQUIPMENT AND MATERIAL INSTALLATION

Install Chemical Reaction Tanks and support structural steel/skids on prepared concrete foundation, in accordance with structural and process mechanical drawings, specifications and manufacturer's installation instructions.

C.3.13.4 TREATMENT PLANT EQUALIZATION TANK EQUIPMENT AND MATERIAL INSTALLATION

Field erect tank as required by drawings and specifications, including installation of all mechanical equipment, appurtenances, and painting and coatings. Coordinate installation with other trades to prevent rework.

C.3.14 TREATMENT PLANT PROCESS EQUIPMENT INSTALLATION (CLIN 0014)

To complete the work required to complete the installation of the Treatment Plant process equipment, the Contractor shall install all mechanical equipment and materials as required by drawings and specifications, including, but not limited to HVAC, plumbing, process equipment, pumps, piping, manufactured tanks, and pipe/equipment insulation. The installation shall be coordinated with other trades to prevent rework.

C.3.15 TREATMENT PLANT ELECTRICAL, INSTRUMENTATION AND CONTROL INSTALLATION (CLIN 0015)

The Contractor shall install all electrical and instrumentation and control materials and equipment in accordance with the requirements of the drawings and specifications. Installation of control systems such as SCADA and the control room. Other items installed would be emergency notification systems, fire alarms, communications, and access control systems

C.3.16 TREATMENT PLANT PROCESS PIPING INSTALLATION (CLIN 0016)

The Contractor shall: (1) procure and install all Process Piping as required by drawings and specifications, including insulation; (2) coordinate installation with other trades to prevent rework; (3) perform pipe inspections and testing as required by drawings and specifications, including, but not limited to, pressure testing and weld inspections; (4) perform testing prior to insulating or backfill at joint locations; and (5) notify DOE 24 hours prior to any field inspection or testing.

C.3.17 HEADWORKS SITE WORK ASPHALT & CONCRETE FINISHING (CLIN 0017)

The Contractor shall install all site work asphalt and concrete in accordance with civil and structural drawings and specifications.

C.3.18 TRANSFER PIPE PROCUREMENT/INSTALLATION (CLIN 0018)

To complete the work required to construct the Transfer Pipeline, the Contractor shall procure all materials and equipment in accordance with the requirements of the drawings and specifications, including, but not limited to: HDPE pipe, pipe supports and anchors,

Pipeline Bridge, and crossover stairs. Receive, unload and stage/store all material in accordance with manufacturer requirements.

Install all transfer pipeline materials and equipment in accordance with the requirements of the drawings, specifications, and with manufacturer requirements.

Clear and grub the transfer pipe line route, as required, prior to installation of pipeline and components, in accordance with the drawings and specifications.

Place gravel pads along pipeline route in accordance with the requirements of the drawings and specifications.

Excavate, construct forms, install rebar, and place concrete for pipeline bridge piers, pipe supports on either end of the pipeline bridge, and concrete HDPE pipe anchors at either end of the transfer pipeline, in accordance with the requirements of the drawings and specifications. Remove forms after concrete has cured.

Install pipeline bridge structure over the EFPC on pipeline bridge piers in accordance with the requirements of the drawings and specifications.

Install transfer pipeline in accordance with the drawings and specifications.

Install conduit, pull boxes, heat trace components, other fittings, and fiber optic cable along pipeline route, in accordance with the drawings and specifications.

Install bollards along the pipeline route in accordance with the drawings and specifications.

Install crossover stairs over above grade transfer pipeline in eight (8) locations along the transfer pipeline route in accordance with the drawings and specifications.

C.3.19 TREATMENT PLANT SITE WORK ASPHALT & CONCRETE FINISHING (CLIN 0019)

The Contractor shall install all site work asphalt and concrete in accordance with civil and structural drawings and specifications.

C.3.20 SYSTEM ACCEPTANCE TESTING (CLIN 0020)

The Contractor shall perform equipment inspections and testing as required by the drawings and specifications, including, but not limited to receipt inspections, Special Inspections and Observations, construction acceptance testing, functional testing, and Manufacturer's Certificate of Proper Installation as part of applicable equipment procurement and installation. Following completion of equipment installation, inspection, and construction acceptance testing, systems will be tested under the direction of the DOE's startup test manager.

The Contractor shall perform system testing in accordance with the approved Test and Start-up Plan to verify systems and controls operate as designed. Perform troubleshooting and repairs, as required, to verify proper system operations. The Contractor shall provide all equipment and materials required for testing. The Contractor shall provide labor, equipment, and materials to support system acceptance testing. The DOE will develop detail test procedures. For planning purposes, the systems subject to acceptance testing which require Contractor support are identified in Table 1.

Table 1. ATP system summary

Process/system	Associated equipment to be tested
Headworks Intake and Base Flow	Bar screen, base flow gate, storm flow gate, base flow parshall flume, storm flow parshall flume, base flow transfer pumps, chemical metering system, associated equipment, valves, I&C
Storm Flow	Storm flow pumps, storm flow sump pumps, chemical metering system, associated equipment, valves, I&C
Grit Handling	Grit pumps, grit washer, grit room sump pumps, grit collection, associated equipment, valves, I&C
Storm water Storage	Storm water tank, tank mixers, associated equipment, valves, I&C
Equalization Tank	Equalization tank, tank mixers, equalization discharge pumps, associated equipment, valves, I&C
Dechlorination	Tanks, tank mixers, chemical metering systems, valves, I&C
Polymer Reaction	Tanks, tank mixers, chemical storage and metering systems, polymer makedown system, associated equipment, valves, I&C
Flocculation	Tanks, tank mixers, chemical metering systems, associated equipment, valves, I&C
Clarifier	Inclined plate clarifiers, mixers, chemical metering systems, polymer makedown system, sludge pumps, associated equipment, valves, I&C
Multimedia Filtration	Multimedia filters/underdrains, backwash pumps, associated equipment, valves, I&C
Solids Dewatering	Tanks, polymer makedown system, filtrate pumps, filter press feed pumps, filter presses, sludge solid waste collection, associated equipment, valves, I&C
Backwash Waste	Backwash waste pumps, associated equipment, valves, I&C
Effluent	Parshall flume, chemical metering system, I&C
Electrical	Headworks and Treatment Plant unit substations (primary switch, transformer, and secondary switchgear), electrical grounding systems, lightning protection systems, motor control centers, adjustable frequency drives, outdoor lighting, associated equipment
I&C	Control systems (including SCADA and control room), emergency notification systems, fire alarm systems, communications systems, access control systems
Building Services	Lighting control systems, sprinkler systems, Headworks chemical storage facility, hot water systems, HVAC systems (including High-Efficiency Particulate Air (HEPA) filtration), air compressor systems, air scour blowers, sample preparation hood, fire protection systems

Following successful completion of the system ATPs, an integrated system ATP will be performed to support acceptance and turnover to operations. The integrated ATP will be performed under the direction of the DOE's test manager, with support by the Contractor. ATPs are expected to be "cold" tests, meaning that the process fluid is potable water or water from another appropriate source. The functionality of process control software, including SCADA, will be demonstrated during acceptance testing. Pre-acceptance SCADA software testing is the responsibility of the DOE. The Contractor shall provide all other materials, equipment and labor to support integrated system testing. Preparation of the final test reports will be performed by others.

C.3.21 DEMOBILIZATION (CLIN 0021)

The Contractor shall dispose of all construction waste prior to demobilizing from the work site. Perform final housekeeping in the work site. Remove all facilities/utilities/pad(s) provided by the Contractor. Remove temporary silt and erosion controls, construction site fencing, and temporary lighting. Restore affected areas. All disturbed areas shall be at grade and seeded/mulched as required by the drawings and specifications. Provide a completed and approved Inspection Punch List.

The Contractor shall provide a completed and approved Project Acceptance Document. The Contractor shall submit operating manuals for equipment and a report of testing results.

Provide red-lined construction drawings depicting as-built conditions within 10 working days after Demobilization from the site.

C.4 GOVERNMENT-FURNISHED SERVICES AND INFORMATION

Services and information to be performed/provided by others, as well as equipment and materials that are not the responsibility of the Contractor include:

C.4.1 SERVICES AND INFORMATION

1. Publishing Progress Meeting Agendas, Meeting Notes and maintaining the Action Items list;
2. DOE Issuance of Y-12 facility LO/TO permit (if needed);
3. Other than vendor programming of specific equipment programmable logic controllers (PLCs), programming of the project PLCs;
4. Programming of SCADA system;
5. There is no cost of usage of the ORR Landfills to the Contractor (note that the Contractor is responsible for all other disposal-related costs);
6. Special Inspections to meet International Building Code (IBC) requirements;
7. Development of Acceptance Test Procedures (ATP);
8. Test Directors for ATPs;
9. Final ATP Test reports;
10. Badging/site access training; and

11. Title III engineering services.
12. Temporary construction power will be provided to the Headworks and Treatment Plant site boundary; and
13. Temporary construction water will be provided at the Headworks and Treatment Plant site boundaries.